SCHAEFFLER

We pioneer motion

Large spherical plain bearings – The right solution for every application

VERSATILE.
EFFECTIVE.
DURABLE.
PROVEN.
EFFICIENT.
RESISTANT.
ROBUST.
RELIABLE.

Schaeffler plain bearings – A success story

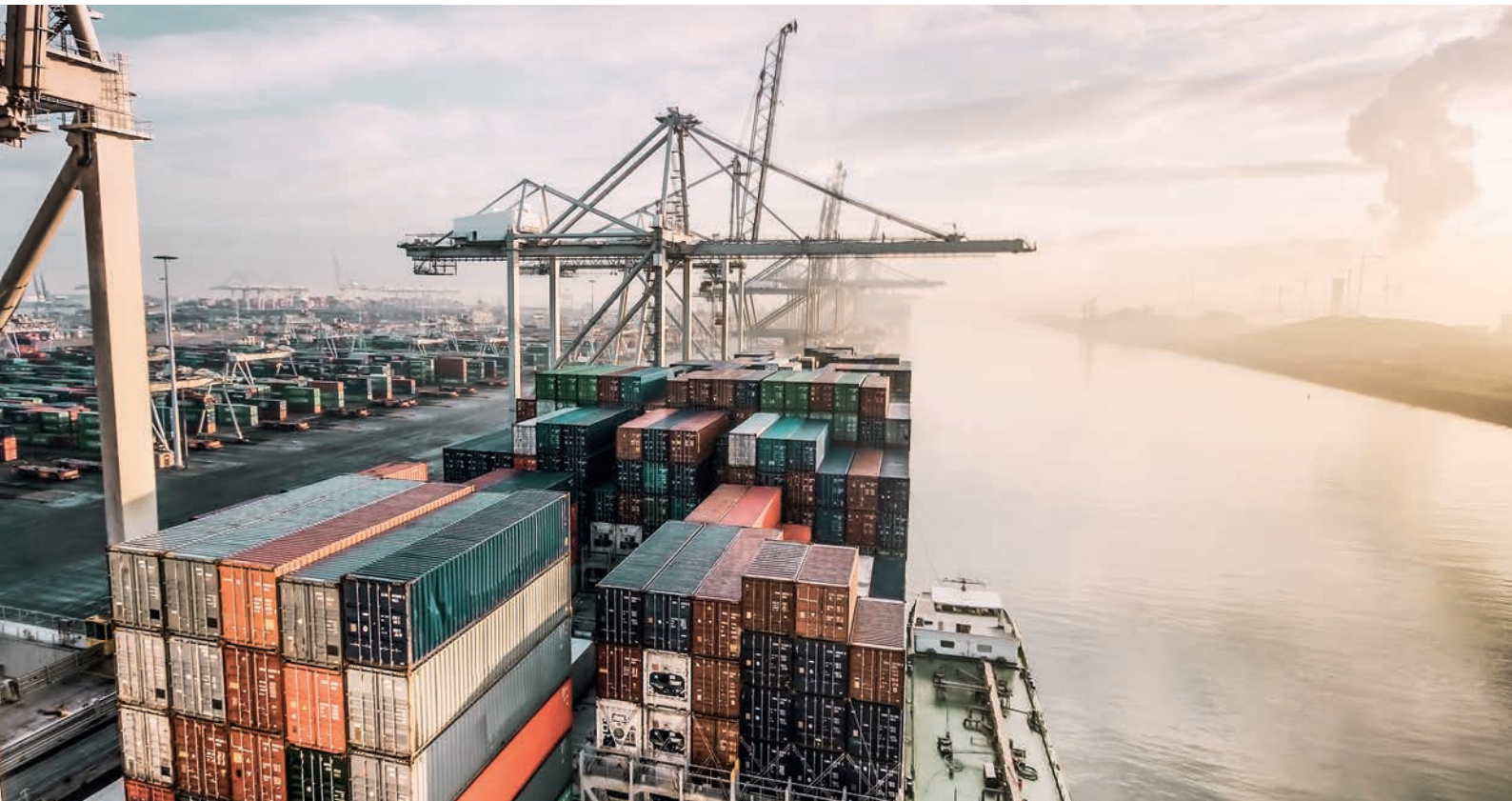
The right solution for every application

Schaeffler is one of the world‘s largest providers of rolling bearings, plain bearings, and linear technology. Leading manufacturers and operators in industry and the automotive sector trust in the quality we provide, as we offer a technically perfect and economical solution for almost every application. INA plain bearings increase the functional reliability and performance of machines and processes. With competent technical advice and a global sales network, we actively contribute to lowering total costs (TCO) for our customers.

Under the INA brand, the Schaeffler Group has been manufacturing and selling a variety of high-quality plain bearings for more than 75 years. These include large spherical plain bearings. Large spherical plain bearings are robust and versatile components that are used in various industrial applications for enabling rotary motions at different angles and transmitting forces. This type of bearing consists of a spherically shaped inner ring and a hollow sphere-shaped outer ring, between which there is a sliding layer. It transmits motions with low tipping torques and can withstand large axial and radial loads while minimizing friction.

Large spherical plain bearings are frequently used in applications in which large structures such as bridges, cranes or lock gates must be moved.

The right choice of large spherical plain bearing depends on a number of factors, including load, life, contamination level, and corrosion resistance. Schaeffler offers a large number of designs and variants that meet the requirements of a variety of different applications.



From maintenance-free to requiring maintenance

ELGOGLIDE spherical plain bearings – Maintenance-free

Under the brand name ELGOGLIDE, we provide high-performance, maintenance-free sliding materials. These are particularly suitable for applications where minimal friction is required.

Designs

To meet the different requirements, the following are available:

- **ELGOGLIDE**
  The standard material for very high dynamic contact pressures from 25 N/mm² to 300 N/mm² and a long operating life.
- **ELGOGLIDE-W11**
  The material for dynamic contact pressures of 1 N/mm² to 150 N/mm², for low contact pressures and low coefficients of friction.
- **GE..-DW series with X-life**
  X-life bearings have even more powerful materials, lower coefficients of friction, and lower running-in wear than comparable bearings do.

Spherical plain bearings with glass fiber reinforced plastic – Maintenance-free

A glass fiber reinforced plastic plate as a sliding layer offers a very high operating life.

Due to the larger sliding layer thickness, this bearing offers a longer wear life compared with bearings with other sliding materials.

The sliding material is therefore especially suitable for applications with single-sided loading. Because relubrication is possible, heavy contamination can be removed from the bearing and thus the operating life extended.

Spherical plain bearings – requiring maintenance

Spherical plain bearings requiring maintenance comprise a steel/steel contact surface. These bearings must be lubricated to prevent metallic contact and thus wear to the bearings.

Steel/steel bearings have a manganese phosphated surface. As a result, the bearings fulfill high requirements for wear resistance and the effective separation of the metallic surfaces gives optimum running-in characteristics.

Spherical plain bearings from Schaeffler increase the performance of machines and systems, vehicles and devices. Durable and capable of supporting heavy loads, they ensure reliable operation – even in the most demanding conditions.

In addition to our standard portfolio we also offer customer and application-specific products.
We will be happy to assist you.

Product portfolio at a glance

Product family	**ELGOGLIDE**	**Glass fiber reinforced plastic (series C)**	**Glass fiber reinforced plastic (series H)**	**Steel / Steel**
Motion	Oscillating / tilting motions	Oscillating / tilting motions	Oscillating / tilting motions	Oscillating / tilting motions
Maintenance	Maintenance-free	Maintenance-free	Maintenance-free	Requiring maintenance
	Dry running	Lubricant **without** solid lubricant	Lubricant **without** solid lubricant	Lubricant **with** solid lubricant
Series	GE..-UK-2RS ISO 12240-1, series E GE..-UK-2TS ISO 12240-1, series E GE..-FW-2RS ISO 12240-1, series G GE..-FW-2TS ISO 12240-1, series G GE..-DW ISO 12240-1, series C GE..DW-2RS2 as DIN ISO 12240-1 (series H) on request.	GE..-DF ISO 12240-1, series C	GE..-HF ISO 12240-1, series H	GE..-DO ISO 12240-1, series E and C GE..-DO-2RS ISO12240-1, series E GE..-DO-2RS4 ISO12240-1, series C GE..-FO-2RS ISO12240-1, series G
Bore diameter Catalog range [1]	200 mm to 1000 mm	320 mm to 670 mm	200 mm to 850 mm	220 mm to 1000 mm
Load-carrying capacity Dynamic	300 MPa	80 MPa	80 MPa	130 MPa
Load-carrying capacity Static	500 MPa	120 MPa	120 MPa	500 MPa
Operating temperature	–50° C to +150° C	–20° C to +75° C	–20° C to +75° C	–60° C to +200° C
Permissible velocity	v 0.30 m/s	v 0.075 m/s	v 0.075 m/s	v 0.10 m/s
Friction	μ 0.02 to 0.2	μ 0.05 to 0.25	μ 0.05 to 0.25	μ 0.08 to 0.22
Seal [1]	2RS / 2TS / 2RS2			2RS / 2RS4
Benefits	• Cost-efficient due to maintenance-free operation • Low coefficient of friction • Downsizing possible thanks to high load capacity • Can compensate for tilting of up to 17° (FW series) • Outer ring axially split and held together by fasteners	• Corrosion protection and sealing against contamination by lubrication • Can be used for large and small swivel angles • Absorbs vibrations • Relubrication can increase the life • Outer ring axially split and held together by fasteners	• Corrosion protection and sealing against contamination by lubrication • Can be used for large and small swivel angles • Absorbs vibrations • Relubrication can increase the life • Outer ring axially split • Wider and larger outer diameter at same shaft size	• Factory-greased for optimal running-in characteristics • Longer life for lower total costs (TCO) compared with the competition

[1] Availability dependent on series

Diverse areas of applications – Large spherical plain bearings in use

The world's largest special ship for the assembly and disassembly of oil drilling platforms

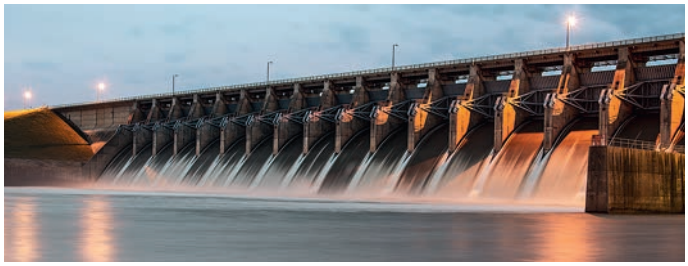
Offshore applications

Schaeffler spherical plain bearings can be found in many offshore applications, from dredgers to oil platforms. In addition to often having an extremely high load-carrying capacity, the bearings in offshore applications must be resistant to corrosion and moisture and operate entirely maintenance-free for the duration of their operating life. To ensure this, Schaeffler offers customer-specific solutions with a special offshore coating.

To comply with the high safety regulations, products can also be supplied with certifications, as provided by Lloyds Register for example.

Bearings arrangements in buildings and structures …

… are sensitive interfaces – for both water and land. They must frequently support weights totaling several tons, withstand extreme heat and biting cold, and are exposed to sandstorms or aggressive salt water. In some cases, they must even be earth-quake-proof.



Dam with spherical plain bearings in the tide gates

Hydraulic Cylinder

Schaeffler offers maintenance-free and requiring maintenance solutions for hydraulic cylinders. We offer you the right bearing for your application, no matter the size.

Opencast mining machinery

Bascule and suspension bridges

Bridge bearing arrangement with ELGOGLIDE

Regardless of whether a double bascule bridge or a hydraulic, balance or swing bridge design is involved, the situation definitely calls for high-performance plain bearings with ELGOGLIDE sliding fabric, as these bearings are completely maintenance-free and have a long operating life. After all, there is hardly any time for maintenance work on a bridge application if it is a main traffic route. For example, harbor bridges have to be opened and closed several times a day to allow shipping traffic to pass through. This means extremely heavy work for all of the bearing positions in the movable bridge segments.

Spherical plain bearings for ladle turrets

For the carrying arm linkages of the ladle turret, the start of the continuous casting line, maintenance-free ELGOGLIDE spherical plain bearings are available. Alternatively, depending on the design of the ladle turret, spherical plain bearings with plastic sliding plates can also be used.

The spherical plain bearings with fiber reinforced plastic sliding plates...
- are maintenance-free
- have a high load carrying capacity
- are suitable for oscillating motions
- require no maintenance work
- are impact-resistant
- have a very long operating life
- can be reconditioned

Schaeffler has been successfully supplying bearings for ladle turrets since 1975. Depending on the turret size, with capacities of 150 t/h to 500 t/h, bearings with a nominal size of 180 mm to 600 mm are used.

Ladle turret

Special application-specific solutions

In close development partnerships with our customers from over 60 industrial sectors, we are constantly developing new solutions that are subsequently offered as catalog products. These are often ready-to-fit components or complete assemblies. The surrounding construction is taken into consideration from the very beginning of the development process so that expensive changes to the adjacent construction are no longer necessary and the overall solution is cost-effective for the customer.

Detailed information on all products can be found at:
medias.schaeffler.de/en/plainbearings

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